AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A pump comprising:

a pump body for at least partially defining a pumping chamber ~~and an inlet and an outlet which communicate with the pumping chamber~~;

a piezoelectric actuator situated in the pump body and responsive to a drive signal for pumping fluid ~~between the inlet and outlet~~; and

a drive circuit which produces the drive signal so that the drive signal has a waveform of a predetermined waveform shape, the drive circuit including a memory, the memory having stored therein waveform shape data which is utilized by the drive circuit in producing the drive signal.

2. (Original) The apparatus of claim 1, wherein the drive circuit includes a controller which generates a digital signal using the waveform shape data stored in the memory.

3. (Original) The apparatus of claim 1, wherein the drive circuit utilizes the waveform shape data so that for each of plural points comprising a period of the waveform the drive signal has an appropriate amplitude for the predetermined waveform shape.

4. (Original) The apparatus of claim 3, wherein the waveform shape data is in paired relation to the plural points comprising the period of the waveform.

5. (Original) The apparatus of claim 3, wherein the waveform shape data comprises amplitude values which are in paired relation to the plural points comprising the period of the waveform.

6. (Original) The apparatus of claim 3, wherein the waveform shape data comprises pulse width modulation values which are in paired relation to the plural points comprising the period of the waveform.

7. (Original) The apparatus of claim 1, wherein the waveform shape data has been prepared to optimize an operational parameter of the pump.

8. (Currently Amended) The apparatus of claim 7, wherein the operational parameter which is optimized by the waveform shape data is one of: fluid flow in the pump; pressure in the pump; acceleration; ~~noiselessness; acceleration;~~ and noiselessness.

9. (Original) The apparatus of claim 7, the waveform shape data has been prepared to optimize plural operational parameters of the pump.

10. (Original) The apparatus of claim 1, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the pump.

11. (Currently Amended) The apparatus of claim 1, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize ~~at least one~~ plural operational parameters of the pump.

12. (Original) The apparatus of claim 10, wherein a number of coefficients determined for the waveform equation depends on a number of harmonics of the waveform that are within a bandwidth of the pump.

13. (Withdrawn)A drive circuit which produces a drive signal for a device having a piezoelectric actuator, the drive circuit being arranged to produce the drive signal so that the drive signal has a waveform of a predetermined waveform shape, the drive circuit including a memory, the memory having stored therein waveform shape data which is utilized by the drive circuit in producing the drive signal.

14. (Withdrawn)The apparatus of claim 13, wherein the drive circuit includes a controller which generates a digital signal using the waveform shape data stored in the memory.

15. (Withdrawn)The apparatus of claim 13, wherein the drive circuit utilizes the waveform shape data so that for each of plural points comprising a period of the waveform the drive signal has an appropriate amplitude for the predetermined waveform shape.

16. (Withdrawn)The apparatus of claim 15, wherein the waveform shape data is in paired relation to the plural points comprising the period of the waveform.

17. (Withdrawn)The apparatus of claim 15, wherein the waveform shape data comprises amplitude values which are in paired relation to the plural points comprising the period of the waveform.

18. (Withdrawn)The apparatus of claim 15, wherein the waveform shape data comprises pulse width modulation values which are in paired relation to the plural points comprising the period of the waveform.

19. (Withdrawn)The apparatus of claim 13, wherein the waveform shape data has been prepared to optimize an operational parameter of the device.

20. (Withdrawn)The apparatus of claim 19, wherein the device is a pump, and wherein the operational parameter which is optimized by the waveform shape data is one of: fluid flow in the pump; pressure in the pump; acceleration; and noiselessness.

21. (Withdrawn)The apparatus of claim 19, the waveform shape data has been prepared to optimize plural operational parameters of the device.

22. (Withdrawn)The apparatus of claim 13, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

23. (Withdrawn)The apparatus of claim 13, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

24. (Withdrawn)The apparatus of claim 23, wherein a number of coefficients determined for the waveform equation depends on a number of harmonics of the waveform that are within a bandwidth of the device.

25. (Withdrawn)The apparatus of claim 13, wherein the device is a pump.

26. (Withdrawn)A memory for use by a drive circuit which produces a drive signal for a device having a piezoelectric actuator, the memory having stored therein waveform shape data which is utilized by the drive circuit in producing the drive signal.

27. (Withdrawn)The apparatus of claim 26, wherein the waveform shape data is in paired relation to plural points comprising the period of the waveform.

28. (Withdrawn)The apparatus of claim 26, wherein the drive circuit utilizes the waveform shape data so that for each of plural points comprising a period of the waveform the drive signal has an appropriate amplitude for the predetermined waveform shape.

29. (Withdrawn)The apparatus of claim 26, wherein the waveform shape data is in paired relation to plural points comprising the period of the waveform.

30. (Withdrawn)The apparatus of claim 26, wherein the waveform shape data comprises amplitude values which are in paired relation to plural points comprising the period of the waveform.

31. (Withdrawn)The apparatus of claim 26, wherein the waveform shape data comprises pulse width modulation values which are in paired relation to plural points comprising the period of the waveform.

32. (Withdrawn)The apparatus of claim 26, wherein the device is a pump.

33. (Withdrawn)The apparatus of claim 32, wherein the waveform shape data has been prepared to optimize an operational parameter of the pump.

34. (Withdrawn)The apparatus of claim 33, wherein the operational parameter which is optimized by the waveform shape data is one of: fluid flow in the pump; pressure in the pump; acceleration; and, noiselessness.

35. (Withdrawn)The apparatus of claim 33, the waveform shape data has been prepared to optimize plural operational parameters of the pump.

36. (Withdrawn)The apparatus of claim 26, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

37. (Withdrawn)The apparatus of claim 36, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

38. (Withdrawn)The apparatus of claim 36, wherein a number of coefficients determined for the waveform equation depends on a number of harmonics of the waveform that are within a bandwidth of the device.

39. (Withdrawn)A method of operating a device having a piezoelectric actuator situated in a pump body, the piezoelectric actuator being responsive to a drive signal, the method comprising:

using waveform shape data stored in a memory to produce the drive signal so that the drive signal has a waveform of a predetermined waveform shape;

applying the drive signal to the piezoelectric actuator.

40. (Withdrawn)The method of claim 39, further comprising using the waveform shape data to produce the drive signal so that for each of plural points comprising a period of the waveform the drive signal has an appropriate amplitude for the predetermined waveform shape.

41. (Withdrawn)The method of claim 40, further comprising formatting the waveform shape data in paired relation to the plural points comprising the period of the waveform.

42. (Withdrawn)The method of claim 40, wherein the waveform shape data comprises amplitude values, and further comprising formatting the waveform shape data in paired relation to the plural points comprising the period of the waveform.

43. (Withdrawn)The method of claim 40, wherein the waveform shape data comprises pulse width modulation values, and further comprising formatting the waveform shape data in paired relation to the plural points comprising the period of the waveform.

44. (Withdrawn)The method of claim 39, wherein the waveform shape data has been prepared to optimize an operational parameter of the device.

45. (Withdrawn)The method of claim 39, wherein the device is a pump and the piezoelectric actuator is responsive to the drive signal for pumping fluid between an inlet and an outlet of a pump body.

46. (Withdrawn)The method of claim 45, wherein the operational parameter which is optimized by the waveform shape data is one of: fluid flow in the pump; pressure in the pump; acceleration; and, noiselessness.

47. (Withdrawn)The method of claim 45, the waveform shape data has been prepared to optimize plural operational parameters of the pump.

48. (Withdrawn)The method of claim 39, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

49. (Withdrawn)The method of claim 39, wherein the waveform shape data has been prepared by solving a waveform equation, the waveform equation having coefficients determined to optimize at least one operational parameter of the device.

50. (Withdrawn)The method of claim 49, wherein a number of coefficients determined for the waveform equation depends on a number of harmonics of the waveform that are within a bandwidth of the device.

51. (Withdrawn)A method of preparing waveform shape data for use by a target drive circuit of a device which comprises a piezoelectric actuator which receives a drive signal generated by the target drive circuit, the method comprising:

generating a drive signal to apply to an operational piezoelectric actuator in an operational device;

obtaining a feedback signal from the pump in accordance with an operational parameter of the device;

using the feedback signal to determine coefficients of a waveform equation;

solving the waveform equation to obtain waveform shape data;

storing the waveform shape data in a memory.

52. (Withdrawn)The method of claim 51, further comprising installing the memory in the target drive circuit.

53. (Withdrawn)The method of claim 51, further comprising reading out the waveform shape data from the memory and storing the waveform shape data in another memory in the target drive circuit.

54. (Withdrawn)The method of claim 51, further comprising storing the waveform shape data in a processor.

55. (Withdrawn)The method of claim 51, further comprising formatting the waveform shape data in the memory in paired relation to plural points comprising the period of the waveform.

56. (Withdrawn)The method of claim 51, wherein the waveform shape data comprises amplitude values, and further comprising formatting the waveform shape data in the memory in paired relation to plural points comprising the period of the waveform.

57. (Withdrawn)The method of claim 51, wherein the waveform shape data comprises pulse width modulation values, and further comprising formatting the waveform shape data in the memory in paired relation to plural points comprising the period of the waveform.

58. (Withdrawn) The method of claim 51, further comprising using the feedback signal to determine coefficients of a waveform equation that optimize performance in terms of the operational parameter.

59. (Withdrawn)The method of claim 58, wherein the device is a pump and the piezoelectric actuator is responsive to the drive signal for pumping fluid between an inlet and an outlet of a pump body.

60. (Withdrawn)The method of claim 59, wherein the operational parameter which is optimized by the waveform shape data is one of: fluid flow in the pump; pressure in the pump; acceleration; and noiselessness.

61. (Withdrawn)The method of claim 59, further comprising:

obtaining plural feedback signals from the pump in accordance with corresponding plural operational parameters of the pump;

using the plural feedback signals to determine coefficients of a waveform equation.

62. (Withdrawn)The method of claim 51, further comprising determining a number of coefficients for the waveform equation in dependency on a number of harmonics of the waveform that are within a bandwidth of the device.